

RESEARCHER IDENTIFIERS AND PROFILES: COMMUNITY STANDARD NETWORKS TO ENHANCE GLOBAL COLLABORATION

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With ever increasing outputs of research and researchers it has become hard to differentiate all the intellectual outputs of a particular researcher with his/her name, disciplines, assignments or organization, which are not always constant in many ways. Unique researcher identifiers and profiles help the scholarly publishing community to associate the creators with their works in precise and unambiguous way to optimize the research discoverability at the global level. The study examines the needs and benefits of a unique identification number or an individual profile for a researcher and scrutinizes some of the popular researcher identifiers available. Merits of commonly used researcher identifiers and profiles are compared and the best among them is recommended in the study. ORCID (Open Researcher and Contributor ID) is found to be the most efficacious unique researcher identifier among the scholarly community and is extensively used in many of the countries as a globally accepted tool.

Keywords: Unique Researcher Identifiers; Researcher Identifiers; ORCID; ResearcherID; Google Scholar Citations; Scopus Author ID.

INTRODUCTION

Identity is a basic component in the world of information and crucial in collaborative working environment. Differentiating an individual author or researcher with name, employment or affiliation is not easy, owing to the appearance of resemblances in them. Ambiguities in such credentials have been a problem in the research and scholarly communication scenario, which often emerges with identical names, changes in name/institution, mobilization in careers and errors occur in transliteration etc. Individuality of a researcher should always be constant even if the researcher changes his name, affiliation, discipline and organization etc. With many authors having identical names on one side and ever-growing literature to keep pace with the information explosion on the other side are putting on a great challenge of keeping a track of each author and his/her research outputs in a way to make it easily discoverable. Such tools for identification are named as Researcher Identifiers (RIs) or Research Profiles (RPs). RIs, also known as Digital Author Identifiers (DAI) or Scholarly Identifiers (SI), are unique numeric codes that establish a unique identity for a given author or creator [1]. RIs provide a number of benefits not only to the researcher alone but also to the publishers, institutions, funding organizations and scholarly societies. Like ISBN for an individual book, ISSN for a journal or DOI for an individual article, a unique identifier makes a scholarly communication more discoverable and highly visible in the global network and connects all the publications of a researcher together. They are making a mark in the field of publishing by being a platform to collect, organize and manage the scholarly identity of researchers and scientists.

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There have been some major tools available in the publishing world to identify and reach of the research work of an individual researcher such as ORCID (Open Researcher & Contributor ID), ResearcherID, Scopus Author ID, PMCID (PubMed Central ID), Author Claim, ArXiv Author ID, International Standard Name Identifier (ISNI) etc. These tools can link the publications of a researcher and create a unique scholarly identity to them to address name ambiguity and provide a number of benefits to the researcher. Author Claim, Virtual International Authority File (VIAF), Scopus Author ID, LATTES, RePEc Author, NARCIS, Names Project etc. generate unique identifiers for the institutions as well. The earlier RIs are not universal in their scope and they are mostly limited to a discipline or a country. LATTES Platform and NARCIS are limited to Brazil and Netherlands respectively [2]. RIs help the funding organizations to simplify the grant submission workflow and monitor the status of the funded research activities. Nowadays, funding agencies, organizational repositories, journal publishers etc have also made it mandatory to use such unique identifier to identify individual researchers. The name ambiguity problem can only be solved collaboratively, when all stakeholders agree on a standard identification scheme [3].

LITERATURE REVIEW

There have been few earlier studies that talk about the structure and benefits of individual identifiers in general and ORCID identifier specifically. There are different tools available in the public domain to disambiguate individuals having the same names or changes or variations in the names. It would be difficult to even list the universities, publishers, non-profit organizations, and national agencies and governments developing or implementing their own systems [4]. According to Buchanan [5], a scholarly ID can help to prevent scholars with similar or identical names from being conflated online. Joly [6] in a research article opined that the introduction of a Unique Author Identification Number (UAIN) system will not only help the scientific community to exploit bibliographic databases more efficiently, but also represent a major step towards getting rid of the despotic domination of the dreaded impact factors of journals as a means to evaluate the quality of

scientific papers [6]. Unique RI allow a researcher to create individual and stable personal identifier to distinguish their publications hence provide a hassle free virtual collaboration. Before the commencement of ORCID, Bourne and Fink [7] had a comparative analysis on the process of identification and justified that none of those identification possibilities are a function of authors having a unique identifier across the scientific industry and community; it simply makes returns more accurate, if not complete. An alternative or additional possibility they had exacted was assigning own DOI which could use to relate to Open ID, ResearcherID, and any new ID schemas. Author identifiers have importance in terms of finding potential collaborators, simplifying publishing workflow along with peer review, getting credit for scholarly activities, to keep track of funded projects and to avoid author name ambiguities [8, 9]. Arunachalam and Madhan [3] conducted an extensive study on ORCID and opine that ORCID adds more value to open knowledge movements as it supports the transition from science to e-science. The traditional discovery tools are not sufficient anymore as there has been enormous output of research every day. ORCID with an open source approach could fill the gap to keep pace between research outputs and discoverability which is the most significant need of present research world [10].

OBJECTIVES OF THE STUDY

The general objective of this study is to sketch the characteristics of popular RIs available for the research community to make their research output more visible to the global community.

The specific objectives of the study are:

- To examine the need and benefits of generating unique researcher identifiers and profiles.
- To distinguish the characteristics of some of the popular researcher identifiers and profiles available.
- To analyze the relative merits and weakness of the studied researcher identifier systems.
- To suggest a best suitable researcher identifier among the analyzed identifier systems.

METHODOLOGY

Primarily, general screening of published literature available in the public domain was done. Information on each researcher identifier was obtained by analyzing the respective website. Sample IDs were created to empathize characteristics of each identifier and the basic operations it performs. In order to determine the best among them the comparative analysis was carried out based on its community acceptance, coverage, relevance, usability etc.

NEED FOR RESEARCHER IDENTIFIERS

Research organizations and educational institutions are ranked based on several parameters for measuring the academic or research performance. Publications and collaboration which include the citations to the research work of researchers play a pivotal role in such ranking frameworks. A researcher may publish his work under different names and languages. A researcher's name is insufficient to reliably identify the author of, or contributor to, an article published in a journal or in a dataset uploaded to a repository. A fool proof method to distinguish and disambiguate names in both the published and unpublished literature would be very helpful, and is, in fact, becoming a necessity in these times of extensive research and publication [11]. Change of name would be a concern at times in the research field. In many countries, the practice of changing or adding a part of spouse's name after marriage is common for females. It is not that easy to identify an individual researcher with minimum effort if the creator changes his/her area of work, affiliations etc. even if there is no name change. Since RIs hold a unique identification generated for each author, the change in name, discipline, affiliations does not matter in reaching out to the right record. The other way round, many people with the same name would become a hurdle for reaching out to the intended piece of work and RIs find ways to fix this issue. In situations like multiple researchers with same name in the same organization working on same or different disciplines, RIs differentiate the researchers and help users to get to the intended work in short time. Changeovers in affiliations may end up in confusion when a particular work is searched by its researcher's parental organization.

Many researchers and scientists have already associated with RIs and link it with social media accounts, institutional accounts, and more. However, the missing element in such case is a standard unique RI that is widely used by academic institutions, funders, publishers, and online tools and services for researchers, which is embedded in research workflows and that automates the process of connecting researchers and their research [10]. RIs have a solution to smoothen this part of work by providing a particular identity which plays a key role in differentiating even when the affiliations change.

BENEFITS OF RESEARCHER IDENTIFIERS

A RI enables a researcher to pool his research outputs in one place without any identity crisis hence they get full credit for their intellectual output. It distinguishes an individual researcher from other researchers having identical names without any ambiguity. Access to all the works related to an individual researcher can be possible with one unique ID that enhances the online visibility and utility of a particular work. Difficulties due to change in names and the display of names in various formats in different publications and indexes can be easily resolved. It can be linked to the researcher's scientific output to enhance scientific discovery and collaboration within the research community. There are a few researcher identifiers, which provide citation metrics and profile also. The productivity and impact of a researcher can be easily evaluated with the creation of an individual ID. RI helps to maintain a complete list of all the publications of a researcher hence generate citation metrics such as h-index etc. Librarians can keep all the documents pertaining to an individual author in their library repository in an organized manner so that it can be retrieved more quickly and efficiently.

Once connected to the research infrastructure through a personal and unique digital identifier, a researcher's work becomes more discoverable and their need to re-enter information into multiple systems to comply with funder, institutional and publisher requirements ultimately will be reduced [12]. An identifier also enhances the scholarly reputation of an individual and helps to measure the citations of individual papers or creators accurately, which further measures their research performance. It is helpful in identifying potential collaborators

without any ambiguity and improves bibliometrics of an individual researcher by way of acknowledging the credit for the individual's work. A unique identifier offers many advantages such as find collaborators, get credit for scholarly activities, collect publications, showcase, evaluate, simplify workflow (publishers), simplify submission (funders), track funded research, track achievements (scholarly societies) [13]. It is even beneficial for publishers to deal with the authorship issues and the researcher can submit their manuscript to them using their RI. It is easy to search and retrieve the publications of a particular research if integrated with the journal databases, repositories and even with the library's public access catalogue. Funding organizations are also benefitted by RIs as it helps to keep track of the funded projects. It can also be embedded with the research activities of a researcher which ensures smooth workflow with ease.

COMMON RESEARCHER IDENTIFIERS

There are many platforms, which offer a researcher to create their own identification number or an individual profile to pool their creativeness under one umbrella. ORCID (Open Researcher & Contributor ID) and Author ID (Author Identifier) are the commonly used ResearcherIDs and Research Gate and Google Scholar Citations are the major research profiles used among research community. Other such identifiers and profiles include Digital Author Identifier (DAI), Lattes Platform, LC/NACO Authority File, Names Project, Virtual International Authority File (VIAF), Current Research Information System (CRIS), International Standard Name Identifier (ISNI), National Academic Research and Collaborations Information System (NARCIS), arXiv Author ID, Author Claim, eRA Commons Username, PMCID (PubMed Central ID), Universally Unique identifiers (UUIDs) etc. Academia.edu, LinkedIn, Social Science Research Network (SSRN), Mendeley etc are also the examples for research profiles.

ORCID (Open Researcher and Contributor Identification)

ORCID is an acronym used for Open Researcher and Contributor Identification, a unique number system (a 16-digit number of xxxx-xxxx-xxxx-xxxx format) to identify an individual

researcher. It is a predominant RI in the recent years, is making a mark in the research world by being a platform to collect, organize and manage the scholarly identity. ORCID is basically an open source application and it supports other open source applications. Registration for creating an ORCID is free and is provided by ORCID Inc., an international, a not-for-profit organization. ORCID, an internationally recognized RI with a 16 digit identifier, enables a person to find out an individual researcher with his/her research work, even if the researcher is associated with many organizations (Fig 1). Creator of the ID is free to provide information pertaining to them under different categories such as assumed names, country, biography, education, employment, areas (in keywords), publications etc. It is a community-driven program, governed transparently by a not-for profit organization and was officially launched in October 2012 which covers all the disciplines. Around 2.8 million IDs have been created by the global research community and currently possess the strength of 601 member organizations. ORCID is an extended division of International Standard Name Identifier (ISNI) with the cooperation of International Organization for Standardization.

ORCID has developed a system where it creates and maintains harmonics between author and publisher and gives provision to simplify the manuscript submission process. The process extends to a wider horizon to automatically update the records of each researcher with metadata of accepted manuscripts. ORCID has been adopted successfully across the globe and being acknowledged by the research communities [11]. Eleven publishers including PLOS, AAAS, IEEE, EMBO Press, eLife, The Royal Society, and the American Geophysical Union have committed to requiring ORCID IDs in the publishing process for their journals and invite other publishers to do the same [14]. This survey has revealed that support for ORCID is growing rapidly among students, researchers, librarians, research institutions, journals, and funders worldwide. The latest to mandate ORCID is the Royal Society which would insist on authors providing their ORCID ID from January 2016. ORCID do data extraction from other RIs such as ResearcherID, Scopus ID, Cross Ref, Data Cite, Europe PubMed Central, ANDS, Airiti etc. Link BibTeX option helps to import citations from BibTeX (.bib) files, including files

exported from Google Scholar and also support manual entry. ORCID can also be connected with the Mendeley profile of an individual, a reference management tool. For a machine-readable user's public record, to perform machine-generated search of public data ORCID is the best platform by offering access points through various research

applications [15]. However, unlike other RIs, ORCID lacks availability of h-index and options for citation counts.

The link to get registered with ORCID is <https://orcid.org/register> [16]. An example for ORCID is <http://orcid.org/0000-0003-2964-8559>

The screenshot displays the ORCID Individual Administrative Page for Gireesh Kumar T K. The page is divided into several sections:

- Header:** Includes the ORCID logo, a search bar, and navigation tabs for "FOR RESEARCHERS", "FOR ORGANIZATIONS", "ABOUT", "HELP", and "SIGN OUT".
- Profile Summary:** Shows the user's name "Gireesh Kumar T K" and their title "Assistant Librarian I Central University of Kerala".
- ORCID ID:** Displays the ORCID ID "0000-0003-2964-8559" and a link to "View public version".
- Also known as:** Lists alternative names: "T K Gireesh Kumar, Kumar, T K G, Gireesh Kumar Thekkum Kara".
- Country:** Lists "India".
- Keywords:** Lists "Open Source Software, Library Automation, Integrated Library System, Open Source Integrated Library System, ILS, OSILS, OSILMS".
- Websites:** Lists "Library & Information System-CUK, CUK Library, ResearcherID".
- Emails:** Lists "gireesharci@gmail.com".
- Other IDs:** Lists "ResearcherID: D-2111-2015".
- Education (4):**
 - Indira Gandhi National Open University: New Delhi, Delhi, India** (2007-06 to 2008-12-01): Master of Library and Information Science (Library and Information Science). Source: Gireesh Kumar T K. Created: 2016-11-09.
 - Farook College: Kozhikode, Kerala, India** (2005-06 to 2006-12-28): Bachelor of Library and Information Science (Library and Information Science). Source: Gireesh Kumar T K. Created: 2016-11-09.
 - Government College Kasaragod: Kasaragod, Kerala, India** (2001-10 to 2004-03-16): Bachelor of Science (Zoology). Source: Gireesh Kumar T K. Created: 2016-11-09.
 - Chattanchal Higher Secondary School, Chattanchal: Kasaragod, Kerala, India** (1999-12 to 2001-03-15): Higher Secondary Education (Science). Source: Gireesh Kumar T K. Created: 2016-11-11.
- Employment (4):**
 - Central University of Kerala: Kasaragod Town, Kerala, India** (2014-12 to present): Assistant Librarian (University Library). Source: Gireesh Kumar T K. Created: 2016-11-09.
 - International Advanced Research Centre for Powder Metallurgy and New Materials: Hyderabad, Telangana, India** (2007-06 to 2014-12-12): Technical Assistant (Technical Information Central). Source: Gireesh Kumar T K. Created: 2016-11-09.
 - Indian Institute of Information Technology and Management Kerala** (2007-06 to 2014-12-12): Technical Assistant (Technical Information Central). Source: Gireesh Kumar T K. Created: 2016-11-09.

Fig.1: ORCID Individual Administrative Page (Sample)

Types of Works

ORCID supports as many as 37 works including book, book chapter, journal article, newsletter article, report website. It also includes rare types of works such as data set, research technique, standard and policy. ORCID provides users opportunity to create new types of works which the existing list does

not contain. ORCID provides two core functions: first, a registry for individual researchers to obtain a unique "digital name" and second, APIs that are used by organizations to exchange research information, support authentication, and connect ORCID IDs with other identifiers for researchers, creative works, and affiliations [17].

ORCID as a Research Hub

Accessing reputed research databases Fig share, Web of Science, Impact Story are few of them. Scholarly activities such as article submission, author-level metrics aggregation have been easier than ever as ORCID has eliminated all the confusion that existed earlier. Esteemed publishers such as PLOS, Elsevier and Nature have adopted ORCID for their article submission system which is a sign of ORCID being professionally competent and effective.

Reputation and Recognition

ORCID is gaining confidence of its users and the number of users was 2,505,533 by the end of August 2016. The organizational members such as Cornell University, Caltech, Elsevier, Wiley, Springer, Nature Publishing Group, Thomson Reuters have increased the (Wikipedia). It has association with Royal Society, Hindawi, The American Geophysical Union, IEEE, Science whose authors are now require to register with ORCID. Registration for ORCID ID is free of cost and it gets its funding from the fees from member organizations including publishers. The privacy policies have been incorporated in ORCID to get the information more secured and reliable. Like any other social profiles, ORCID too provides option to make certain privacy settings about the visibility of the content in profile.

Response to ORCID

In the latest developments, many researchers across the globe are using ORCID ID in their websites and accounts of social media to make their work more discoverable. Many scholarly websites where researchers have their profiles are proactively integrating ORCID identifier to keep the researchers' details updated.

RESEARCHERID

In the attempt of eliminate the ambiguity issues in the research community ResearcherID is one such platform that provides a unique identifier thereby avoids misidentification of

author. It also helps to manage the lists publications, number of times cited, and h-index of the research output. ResearcherID service is provided by Thomson Reuter since 2008 and has an association with Web of Science (WoS). The authors have the option to make their profiles publically accessible or keep it for private use. ResearcherID supports Unicode (UTF-8) standard and allows searching and uploading of publication lists in any language. It extracts data from the subscribed contents from Web of Science, End Note and Manual entry. Over 3 lakh researchers have been registered with this identifier and it covers mainly natural science discipline. Researchers can add all their publications to a ResearcherID profile, however, it provides citation calculations only for those publications which are indexed in WoS, and allow the researchers to download their reports from them. The registration for ResearcherID can even be made through WoS apart from which an existing user can send an invitation for a new member.

ResearcherID provides users option to add various kind of works including patents, articles, conference proceedings, grants and many more. The platform enables the author which 'My Publications' that gives the list of own publications and this can be shared publicly. There is also option for the authors to have additional publication lists that facilitate the storage of publication of a particular author and a list of publication of the area of interest. These lists are citation metric enabled and cannot be shared publicly (Fig 2). There are 35 of Research Information Systems (RIS) reference types that can be uploaded in ResearcherID which includes abstract, art work, case, data file, generic, map, report, slide etc. Any work authored in RIS format may be uploaded even if it is not indexed in Web of Science (ResearcherID). ResearcherID shows h-index and citation counts. A ResearcherID can be linked with an ORCID and the registration details can be had from <http://researcherid.com>.

An example for Research ID is <http://www.researcherid.com/rid/D-2111-2015>

RESEARCHERID THOMSON REUTERS

Home My Researcher Profile Refer a Colleague Logout Search Interactive Map EndNote >

T K, Gireesh Kumar Get A Badge ResearcherID Labs Your labs page and badge show only your public data Manage Profile Preview Public Version

ResearcherID: D-2111-2015 My Institutions (more details) ▲

Other Names: Primary Institution: Central University of Kerala

E-mail: gireesharci@gmail.com Sub-org./Dept:

URL: <http://www.researcherid.com/rid/D-2111-2015> Role: Librarian

Subject: Information Science & Library Science Joint Affiliation:

Keywords: Enter a Keyword Sub-org./Dept:

ORCID: <http://orcid.org/0000-0003-2964-8559> Role:

Exchange Data With ORCID Past Institutions:

Description: Enter a Description

My URLs:

My Publications

My Publications (21)
View Publications ▶
Citation Metrics
Manage | Add

ResearcherID labs
Create A Badge
Collaboration Network
Citing Articles Network

Publication Groups

Publication List 1 (0)
View Publications
Citation Metrics
Manage | Add

Publication List 2 (0)
View Publications

My Publications: View Manage List Add Publications

This list is to be used for publications that you have authored. You have the ability to make this list public or private. If public, then visitors of ResearcherID can see your scholarly output, and your list will be sent to the Web of Science (click here for more information). Click on the Manage Profile button at the top-right corner of the page and select the Publication Lists tab to change the privacy settings of your data.

21 publication(s) Page 1 of 3 Go Sort by: Publication Year Results per page: 10

- Title: Adoption of Koha open source integrated library system in Indian libraries: An analytical study added 11-Nov-16
Author(s): Kumar, T.K. Gireesh; Ramesha
Source: Indian Journal of Library and Information Science Volume: 10 Issue: 2 Pages: 149-155 Published: 2016
- Title: Adoption of Open Source Integrated Library System in Indian Libraries: Attitude of LibSys Software Users added 11-Nov-16
Author(s): T. K., Gireesh Kumar
Source: Perspectives on Knowledge Management (ISBN: 978-81-7844-240-2) Pages: 401-413 Published: 2016
- Title: Adoption of Open Source Integrated Library System: User's Perception among the Selected Libraries in India added 11-Nov-16
Author(s): Gireesh Kumar, TK
- Title: Embracing Open Source Software for Library Automation : An Analytical Study on Koha in Indian Libraries added 11-Nov-16
Author(s): Gireesh Kumar, T.K.

Fig.2: ResearcherID Individual Administrative Page (Sample)

SCOPUS AUTHOR ID

Similar to ORCID, Scopus assigns unique author identification number to each researcher in the Scopus database and helps them group their work together with a condition that the researcher has published articles in the journals indexed by Scopus. The service of creating Scopus Author ID is started in 2006 by Elsevier and covers the major disciplines such as natural and social science, humanities, business etc. This unique ID is created by Scopus automatically and programmatically (Fig 3). To determine which author names should be grouped together under a single identifier number, the Scopus Author Identifier uses an algorithm that matches author names

based on their affiliation, address, subject area, source title, dates of publication citations, and co-authors [18]. If a document cannot be confidently matched with an author identifier, it is grouped separately. In this case, more than one entry for the same author may be seen [19]. Scopus Author ID helps to provide the number of times a research article is cited, authors who have been cited differently, and also its h-index for the subscribed contents of Scopus. The URL <http://www-scopus-com.dbgw.lis.curtin.edu.au/> gives more details about this service [20]. An example for Scopus Author ID is 38861520500

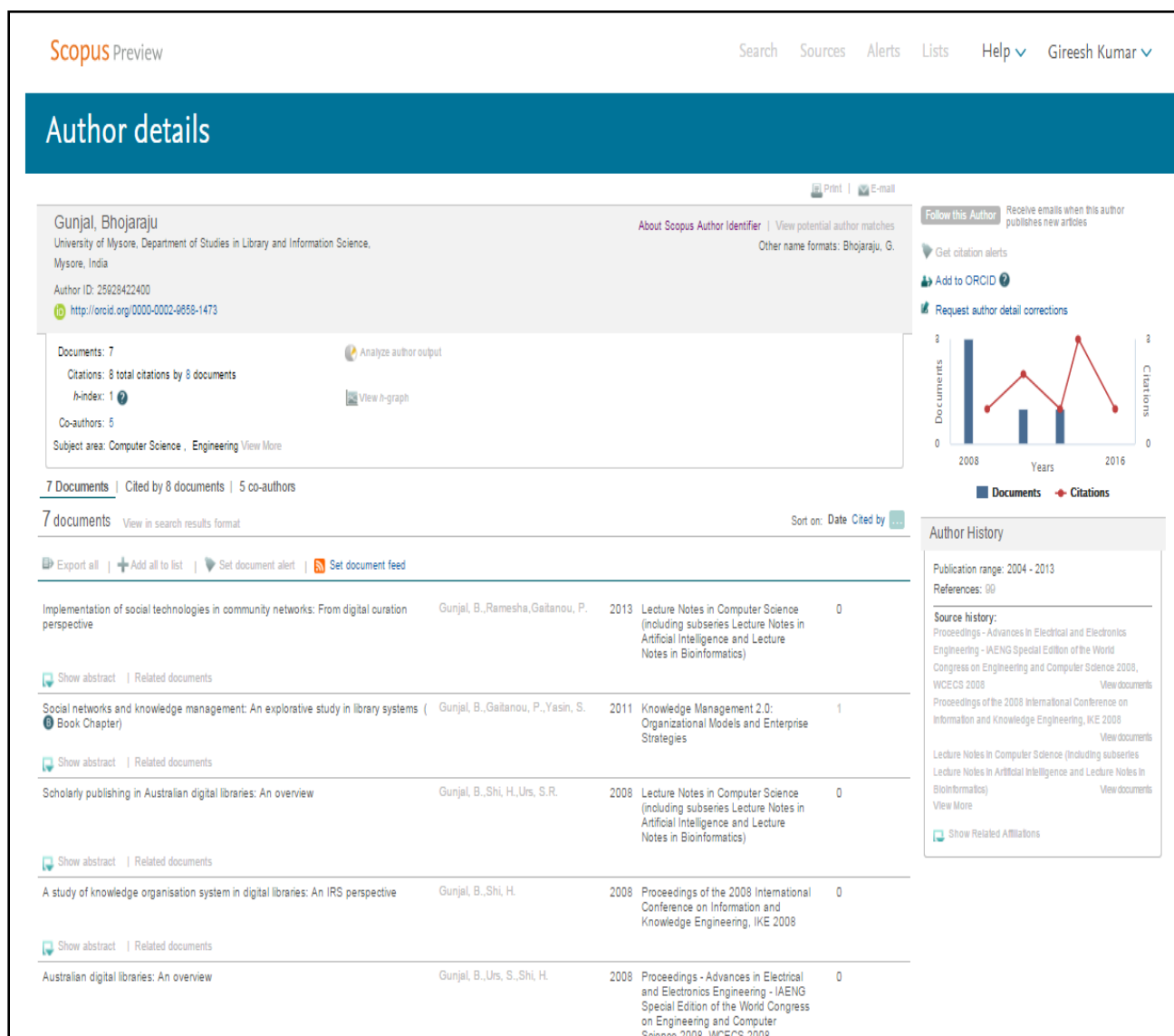


Fig.3: Scopus Author ID Individual Administrative Page (Sample)

GOOGLE SCHOLAR CITATIONS

Google Scholar Citation service is provided by Google and has options to make the profile of the researcher public or private. It covers all the disciplines. If a researcher makes his/her profile as public, it will appear in the search result with that particular name (Fig 4). Availability of h-index and citation counts makes it in the same line of other RIs and it gives such citation counts for articles found within Google Scholar. Creating individual profile enable a researcher to pool all scholarly communication in a single page and allow the researcher to see the citation analysis for all the publications listed. Further, it automatically calculates citation indices such as total number of citations, h-index and i10-index. Though citation

metrics only cover articles published since 2011, it is indexing more journals and more types of publication than other databases like Scopus and WoS. Publications that are not indexed by Google Scholar can be manually added then it automatically updates the citation profile with metrics and graphs. The author gets full privilege to directly edit and update the profile. Names of the co-authors can be added with the profile. It covers a wide range of publications such as journal articles, books, proceedings papers, book chapters, gray literature etc. Google Scholar is a sub set of Google, a for-profit company; hence, the continuity of free service of Google Scholar cannot be predicted [21].

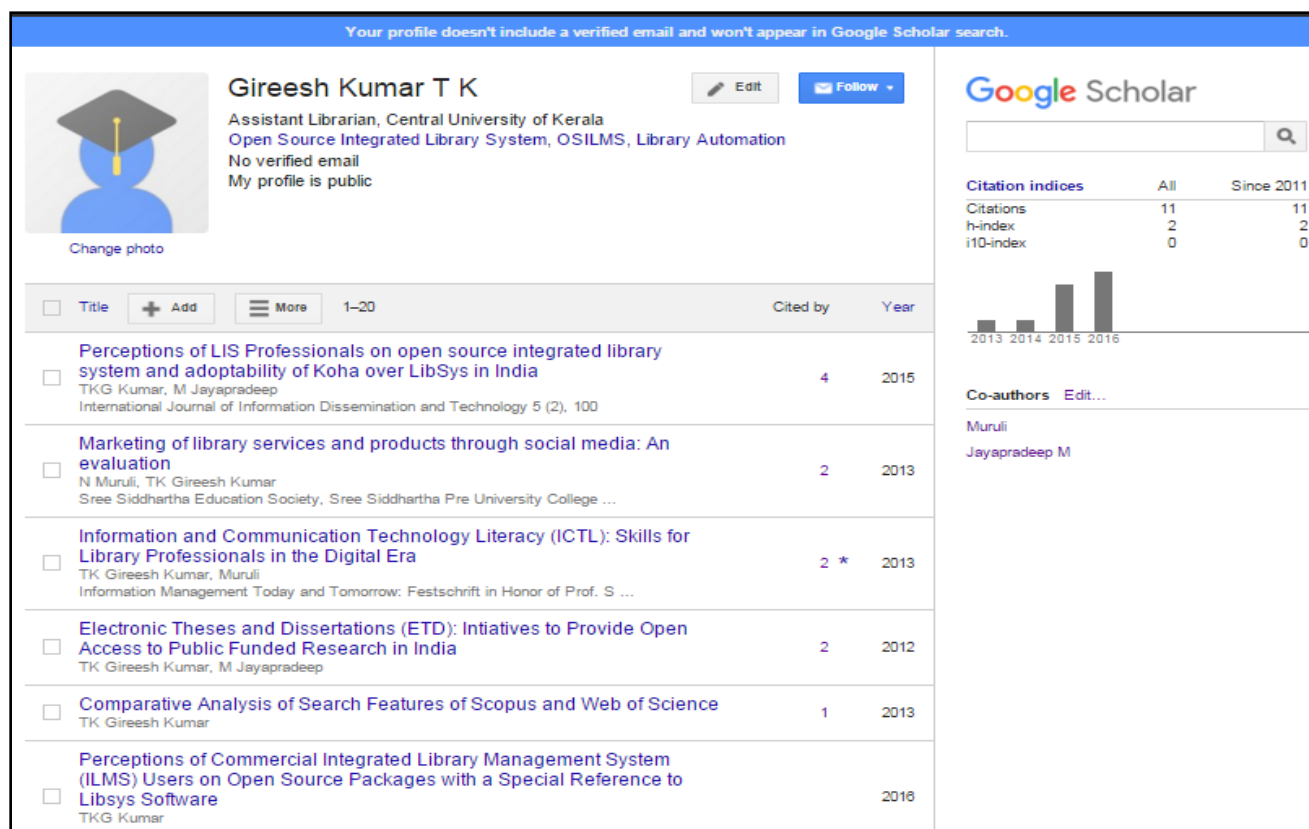


Fig.4: Google Scholar Citation Individual Administrative Page (Sample)

FINDINGS

In view of the outcome of the comparative analysis, ORCID is found being accepted and used by the research and scientific community globally. Unlike its counterparts, ORCID does not limit its service to a geographic region or discipline or a particular knowledge database. Covering most of the branches of knowledge and availability at free of cost add more value to services of ORCID. It is also identified that ORCID is the only identifier integrating with all other existing author identifiers. However, if a researcher's area of study is only in the discipline of natural sciences, he/she can use ResearcherID. Nevertheless, the citation metrics graph and related data will be generated only if the publications added to the profile from the core collection of WoS. Hence citation metrics generated by ResearcherID is not exhaustive. Further, if a researcher intends to publish articles in journals, which is indexed by Science Direct or Web of Knowledge, he/she can use either Scopus Author ID or ResearcherID. If the areas of work of a researcher is multidisciplinary such as natural and social sciences, humanities, business then Scopus Author ID is more appropriate. However being a proprietary

author ID, it is used by Scopus only. But if the publication of a particular researcher is associated with sciences or medicine then he/she can use ResearcherID as well as Scopus Author ID. Google Scholar Citations is more preferable when a researcher publishes books and book chapters and the publications that are not covered by Science Direct or Web of Knowledge as it provides options to add the publication manually also. Both Scopus Author ID and ResearcherID are proprietary tool, ORCID is an open source non-profit initiative so that the chances of usage restrictions associated with ORCID are significantly less. ORCID is an ideal one for all the researchers from any disciplines as it links records from both ResearcherID and Scopus Author ID. Moreover, it has user privacy controls and can further link to other similar kind of identifiers such as ResearcherID, Scopus ID etc. ORCID saves the time of researchers to spend time on reporting since ORCID updates information across information systems with automated revision and effective interoperability. Unlike other identifiers, ORCID supports open access movement.

RECOMMENDATIONS

The RIs are not used the way which is expected to accomplish as many of the researchers are not realized its full potential. The reason that unique identifiers for authors are not as commonly used as unique identifiers for scholarly contributions is not that they are not needed, but rather that they are something rather difficult to implement (Fenner, 2011). Nevertheless, these systems are made much easier than earlier and can further improve the efficiency.

- Mechanism need to be evolved to integrate a single and commonly accepted RI of an individual with all the publications as a matter of policy of scholarly publications.
- An international standard to be developed and a single format to be adopted across the globe for RIs.
- The system should involve researchers, librarians, publishers, funders at distinguished levels.
- The authority that maintains the profiles and details of researchers must place priority for formulating the regulations to maintain the privacy policy in order to get the personal details more secure and confidential.
- Access points to be provided with the coordination of all research platforms which eases the burden of logging in through a particular portal and it saves the time of researcher.
- Libraries and information centres should be shouldered the responsibility of creating awareness among research community and they should constantly extend help in creation and maintenance of researchers' profiles of their organization.
- Research Identification needs to be embedded with the grant submission systems and workflows of the organization as a research identity management system.
- Policy needs to be formulated to integrate author identifier with the book and manuscript submission system mandatorily to streamline the workflow and tracking the status.
- Attribution of authors and contributors with unique identifier need to be incorporated with the

institutional repository system to increase the visibility of all their intellectual output.

- Citation metrics and graphs need to be integrated with the unique identifier profile so that the productivity and impact of a researcher can be easily evaluated.

CONCLUSION

RIs and profiles are gaining popularity among the academic and scholarly publishing communities which have the ability to link researchers with their professional activities and avoid author misidentifications. It is imperative that the best way to identify a particular researcher is through a unique identifier rather than his/her name and the visibility of a researcher's work is highly dependent upon such individual identity. The growing numbers are the evidence of RIs being successful and effective tools for managing the modern research community. Some of the identifiers and profiles allow manual entry for any publications that are not traced while browsing. The participation of international organizations and research institutions is on great rise to provide maximum visibility to their research outputs. Among the existing RIs, ORCID seems to be possessing most of the features that a researcher's profile should. Further, unlike other identifiers and profiles ORCID is not restricted to a particular publisher-based commercial service, discipline, geography, or institution. The convergence of all RI is the call of the time for more progress in research database management. In the upcoming years it is expected to be omnipresent in every activity of research.

REFERENCES

- [1] Texas A & M University Libraries, n.d. Researcher Identifiers. http://guides.library.tamu.edu/researcher_ids [accessed 29 January 2016].
- [2] Fenner, M. Author identifier overview, *LIBREAS: Library Ideas*, 18, 2011. <http://libreas.eu/ausgabe18/texte/03fenner.htm> [accessed 16 April 2016].
- [3] Arunachalam, S. & Madhan, M. Adopting ORCID as a unique identifier will benefit all involved in scholarly communication. *The National Medical Journal of India*, 29(4), 2016.

- [4] Wagner, A B. Tips from the experts, author identification systems. *Issues in Science and Technology Librarianship*, Fall 2009.
- [5] Buchanan, H and etal. Reaching faculty during the summer: taking inspiration from the blogosphere. *College & Research Libraries News*, 77(3), 2016, 140-143.
- [6] Joly E. Further Advantages of a Unique Author Identification Number. *PLoS Med*, 3(8), 2006, 1437.
- [7] Bourne PE & Fink JL. I am not a scientist, I am a number. *PLoS Computational Biology*, 4(12), 2008.
- [8] Fenner, M. Author Identifier Overview. <http://blogs.plos.org/mfenner/author-identifier-overview/> [accessed 10 December 2016].
- [9] Warner, S. Author identifiers in scholarly repositories. *Journal of Digital Information*, 11(1), 2010.
- [10] [5] Fenner, M & Haak, L. Unique identifiers for researchers. http://book.openingscience.org/cases_recipes_howtos/unique_identifiers_for_researchers.html [accessed 10 November 2016].
- [11] Rosenzweig, M. & Schnitzer, A. An initiative to address name ambiguity: implementing ORCID at a large academic institution. *College & Research Libraries News*, 76(5), 2015.
- [12] Denker, S. Digital Identifiers Improve Recognition and Credit: ORCID. <http://blogs.plos.org/plos/2015/10/collaboration-improves-recognition-credit/> [accessed 12 December 2016].
- [13] Schoombee, L. What's in a name: the role of Scopus Author IDs, 2015. http://repository.up.ac.za/bitstream/handle/2263/49260/Schoombee_Scopus%20Author%20ID.pdf?sequence=4&isAllowed=y [Accessed 13 December 2016].
- [14] Arunachalam, S. ORCID in Indian journals. *LIS FORUM Post Monday, 11 Jan 2016*. <http://ncsi.iisc.ernet.in/pipermail/lis->
- [15] Meadows, A. Everything you ever wanted to know about ORCID: but were afraid to ask. *College & Research Libraries News*, 77(1), 2016.
- [16] ResearcherID: <http://www.researcherid.com> [accessed 12 April 2016].
- [17] Free, D. News from the Field: Springer Nature implements ORCID: *College & Research Libraries News*, 2015, 574-577.
- [18] Sapp, A. Researcher impact and academic profiles. https://www.ct-lc.org/sites/ctlc.org/files/SCDC-2016_08_sapp.pptx [accessed on 18 December 2016].
- [19] Elsevier. Scopus author identifier. http://help.elsevier.com/app/answers/detail/a_id/2845/p/8150 [accessed on 28 December 2016].
- [20] Elsevier. Search for an author profile. <https://www.scopus.com/freelookup/form/author.uri> [accessed on 13 December 2016].
- [21] Google Scholar. Google Scholar Citations. <https://scholar.google.com/intl/en/scholar/citations.html> [accessed on 22 December 2016].